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## Conservation Knowledge and Attitudes of Iowa Academy of Science Members

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## **Conservation Knowledge and Attitudes of Iowa Academy of Science Members**

By GEORGE D. LOVELL

Over a year ago I received a letter asking if I would serve on an advisory committee to the Academy committee on conservation. The gist of the letter was that Academy members outside the fields usually associated with conservation might be helpful to the regular committee in an advisory capacity. If the aim was to secure members who were woefully ignorant of the field of conservation, mine was a happy choice for membership on the advisory committee. I so informed the secretary and was accepted anyway, so at least my conscience was clear. I felt that at least I could learn something whether or not I contributed positively to the Academy program on conservation.

At the first meeting of the combined conservation committee and its advisors at Fairfield, several members expressed a desire to know something about the knowledge of and attitude toward conservation on the part of Academy members in general. The chairman of the conservation committee suggested that he had seen a questionnaire on conservation which might be appropriate and thought that its circulation among Academy members might give us some indication of their thinking. Seeing a chance to make my membership on the Advisory Committee something more than a formality I volunteered to summarize the data obtained from such a questionnaire and to make a report of the tabulation. This paper is a result of the study.

The questionnaire was divided into three sections: (1) personal and identifying information; (2) twenty-five items designed to measure the attitude of the respondent toward conservation practices; and (3) seventy-five items concerning knowledge of the subject in five areas of conservation. The attitude scale and achievement test were constructed by Wievel (1947) for his doctoral dissertation at Iowa State College. His study dealt with conservation attitudes and knowledge of high school students, but the questions seemed equally applicable to any persons interested in the field, and no modification of them was attempted. The printed questions designed to gather identifying information were specifically adapted to the high school student, however, and a mimeographed sheet more appropriate for members of the Academy was substituted in this study.

Wievel's techniques for constructing the attitude scale and the

achievement test were those in common and acceptable practice today. He made attempts to determine the validity and reliability of each instrument. In both cases the reliability was adequate for a group study, the coefficient of reliability being 0.71 for the attitude scale and 0.91 for the achievement test. In the case of the attitude scale, such a reliability would be too low for individual prediction but adequate for the study of a group of scores, the purpose in mind in this study. The reliability for the achievement test was high enough for use in both group and individual predictions. Definite criteria including the judgments of experts were used in satisfying the validity requirement of both the attitude and achievement scales, although desirable statistical checks are lacking.

Over 275 of these questionnaires were sent to all resident fellows of the Iowa Academy of Science and to resident associates who have the generally accepted qualifications of fellows. Of the approximately 275 questionnaires mailed, only 80 were returned, five of which arrived too late to be included in this study; therefore it is based on 75 cases. From the scores obtained by this group, the writer is inclined to believe that there may be some selectivity in the returns; i.e., those persons who felt competent to answer the achievement questions returned the questionnaires in greater proportion than those who did not feel competent. This assumption cannot be proved at this point, and there are a few lines of evidence to refute it, but they are meager. The basis for the assumption is the high scores made on the achievement test by the sample who returned the questionnaires and the greater proportion who returned them from sections of the Academy more closely associated with conservation. This may indicate no more than the writer's ignorance of the field of conservation and the resulting chagrin that there are so many members of the Academy who are better informed than he!

#### SUMMARY OF RESULTS

It must be kept in mind that the following results are based on the 75 questionnaires returned and are as representative of Academy members as a whole as this group is.

The attitude scale was so scored that a value of 125 represents complete agreement with the statements presented to indicate the attitude toward conservation. This represented an extremely favorable attitude. A score of 75 would have shown a neutral attitude, and one of 25 an unfavorable one. As shown in Table 1 the mean attitude score for this group was approximately 102 with a standard deviation of approximately 9, and the median score was about 100.

The distribution approximated that of a curve of normal distribution.

**Table 1**

Central Tendency and Dispersion of Attitude Scores

N	Mean	Standard Deviation	Median
75	101.75	8.70	99.76

These results indicate a strong positive attitude toward conservation practices and are at approximately the 91st percentile when the norms from Wievel's study on high school students are used. This does not imply that these norms are applicable to college trained people such as members of the Academy, but they are the only norms available.

This group also made a good showing on knowledge of conservation facts. The mean number of errors was approximately 11 out of a possible 75 correct answers, with a standard deviation of about 6. The median number of errors was approximately 13, as shown in Table 2, and the distribution was approximately normal.

**Table 2**

Central Tendency and Dispersion of Errors on Achievement Test

N	Mean	Standard Deviation	Median
73*	10.68	6.38	12.83

\* Two of the respondents failed to answer all the questions.

This mean score again represents a high degree of knowledge about conservation facts. If compared with the norms for high school students it is obvious that such norms are not applicable, for an achievement score of 64 correct responses represents the 100 percentile.

When the questionnaires are divided according to the section in which the respondent has membership, the following are the results (Table 3).

It can be seen from Table 3 that the percentage of questionnaires returned for each section is low. Sections E, Geology, F, Zoology, and G, Botany, clearly show a greater percentage return than the others, however, except for psychology which seems to be a special case. Psychologists are more familiar with and sympathetic to questionnaires perhaps than others, and the person to whom the questionnaires were to be sent is a fellow psychologist. It is the writer's *a priori* assumption that members of Sections E, F, and G are better acquainted with conservation mat-

**Table 3**

Questionnaires Sent and Returned According to Sections

Section	No. Sent †	No. Returned	% Returned *	Mean * Attitude Score	Mean Achievement Score * (Errors)
A-Math.	25	4	16	103	19
B-Phys.	33	5	15	99	15
C-Chem.	56	9	16	99	18
E-Geol.	30	7	23	101	13
F-Zool.	78	16	20	101	12
G-Bot.	79	21	26	103	13
I-Psy.	31	10	32	104	15
O-Bact.	19	2	10	105	22

† Several members belong to more than one section and were counted in each.

\* Figures rounded to avoid decimals.

ters for professional reasons than are other section members, and they are the ones who responded in proportionally greater numbers. They also had a lower average number of errors than those from other sections, although their attitudes toward conservation were not materially different. Statistical indications of significance of these differences were not computed because the writer feels the sample is not shown to be representative enough to warrant such procedure, and the number of cases in each instance was too small.

Table 4 presents the answers to questions put to the respondents on the cover sheet of the questionnaire.

**Table 4**

Responses to Questions on Support of Conservation Program

Statement to be checked according to willingness to participate by:	Checked	?	Not Checked
1. Giving my endorsement to general conservation practices in my community	68	0	7
2. Taking part in publicizing need for conservation	43	2	30
3. Actively campaigning for conservation if leadership provided	25	1	48
4. Taking lead in encouraging conservation in my community	14	2	58
	Yes	?	No
5. Do you think the Iowa Acad. Sci. should take an active part in promoting conservation practices in the state?	70	2	2

6. Would you be likely to read a concise and simply written pamphlet on conservation problems and needs in Iowa if it were sent to you?	69	0	2
	Regularly	Occas.	Never
7. I listen to radio programs on conservation topics	8	46	17
8. I read books and bulletins on conservation	30	39	4
9. I read newspaper articles on conservation	31	41	0
10. I see motion pictures on conservation	6	50	15

So far as this sample is concerned the results seem encouraging. A large majority are in favor of community conservation practices, and more than half would take part in publicizing their need. Fourteen out of the 75 would be willing to take leadership in encouraging conservation practices in the community, which seems to be a fairly good proportion. An overwhelming majority also favor the Academy's taking an active part in promoting conservation practices in the state, and those who did not, suggest that the Academy should encourage conservation but should not be a pressure group politically but should maintain its scientific position.

All in all, the results of the questionnaire show that the sample studied have a favorable attitude toward conservation, are well informed about it, and would promote conservation in their communities to varying degrees.

#### Reference

Wievel, Bernard F. (1947) Attitude toward and knowledge of conservation possessed by students in Iowa High Schools. Ph.D. Thesis, Iowa State College, Ames.

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